

WHAT IS CLAIMED IS:

1. An oven comprising:

a cooking cavity;

an RF generation module for delivering microwave energy into said cooking cavity;

5 an upper heater module comprising at least one heat source for convection cooking;

a lower heater module; and

a control operatively connected to said RF generation module, said upper heater module, and said lower heater module for selective control thereof.

10 2. An oven in accordance with Claim 1 wherein RF generation module comprises a magnetron.

3. An oven in accordance with Claim 1 wherein said upper heater module comprises at least one of a halogen lamp, a ceramic heater, and a sheath heater.

15 4. An oven in accordance with Claim 1 wherein said lower heater module comprises at least one of a halogen lamp, a ceramic heater and a sheath heater.

5. An oven in accordance with Claim 1 wherein said control operates said oven in a plurality of modes, at least one of said modes comprising a microwave mode, a speedcook mode, and a convection / bake mode.

20 6. An oven in accordance with Claim 5 wherein in said microwave mode, said control is configured to energize said RF generation module.

7. An oven in accordance with Claim 5 wherein in said speedcook mode, said control is configured to control the energization of said upper heater module, said lower heater module, and said RF generation module.

25 8. An oven in accordance with Claim 7 wherein said upper heater module comprises a halogen lamp, a ceramic heater, and a sheath heater, and when in said speedcook mode, at least said halogen lamp is selectively energized.

9. An oven in accordance with Claim 5 wherein in said convection / bake mode, said control is configured to selectively energize said upper heater module and said lower heater module.

5 10. An oven in accordance with Claim 9 wherein said upper heater module comprises at least one of a sheath heater and a radiant energy source, and when in said convection / bake mode, at least said sheath heater is selectively energized.

11. An oven in accordance with Claim 1 wherein said control is configured to operate said oven in a warming mode.

10 12. An oven in accordance with Claim 1 wherein operation of said RF generation module, said upper heater module, and said lower heater module are independently adjustable during operation of said oven.

15 13. An oven in accordance with Claim 1 wherein said control panel is further adapted for user input and adjustment of a cooking time.

14. An oven in accordance with Claim 1 wherein said control panel is coupled to a microcomputer, said microcomputer programmed to operate said RF generation module, said upper heater module, and said lower heater module for pre-selected target on times corresponding to a user selected operation mode.

20 15. An oven in accordance with Claim 1 further comprising an air duct for airflow adjacent said cavity, a fan for generating air flow through said duct, a thermistor in flow communication with said duct, said thermistor coupled to said control, said thermistor configured to generate an output signal representative of cavity temperature, said control configured to generate a temperature value based on said thermistor output signal and further configured to determine an adjustment to said temperature value based on whether said fan is energized.

25 30 16. An oven in accordance with Claim 1 further comprising a thermistor in thermal communication with said cooking cavity, said thermistor coupled to said control, and wherein said control is programmed to determine whether said cavity is above a selected temperature upon initiation of a speedcooking cycle, and if said cavity is above said selected temperature upon initiation of the speedcooking cycle, then adjusting the energization of at least one of said upper heater module and said lower heater module.

17. An oven comprising:

a cooking cavity;

a plurality of modules for delivering energy into said cooking cavity, said energy comprising radiant energy, microwave energy, and thermal energy; and

5 a control operatively connected to said modules for controlling delivery of energy to said cooking cavity, said control configured to operate said modules in a microwave cooking mode, a convection / bake cooking mode, and a speedcook mode.

10 18. An oven in accordance with Claim 17 wherein said plurality of modules comprise an RF generation module, an upper module, and a lower module.

19. An oven in accordance with Claim 18 wherein RF generation module comprises a magnetron.

20. An oven in accordance with Claim 18 wherein said upper module comprises at least one of a halogen lamp, a ceramic heater, and a sheath heater.

15 21. An oven in accordance with Claim 18 wherein said lower module comprises at least one of a ceramic heater and a sheath heater.

22. An oven in accordance with Claim 18 wherein in said speedcook mode, said control is operative to selectively energize said upper module, said lower module, and said RF generation module.

20 23. An oven in accordance with Claim 22 wherein said upper module comprises a halogen lamp, a ceramic heater, and a sheath heater, and when in said speedcook mode, at least said halogen lamp is selectively energized.

24. An oven in accordance with Claim 18 wherein in said convection / bake mode, said control is operative to selectively energize said upper module and said lower module.

25 25. A method for operating an oven including a microcomputer, an RF generation module, an upper module, and a lower module, said method comprising the steps of:

obtaining at least one input from a user indicative of whether the oven is to operate in a microwave mode, a convection / bake mode, or a speedcooking mode;

energizing the RF generation module, said upper module, and said lower module in accordance with the user input;

26. A method in accordance with Claim 25 wherein if the oven is to operate in the microwave mode, then the RF generation module is energized.

27. A method in accordance with Claim 25 wherein if the oven is to operate in the convection / bake mode, then the upper module and the lower module are energized.

28. A method in accordance with Claim 25 wherein if the oven is to operate in the speedcooking mode, then the RF generation module, the upper module, and the lower module are energized.

29. A method for determining temperature of a cooking cavity based on an output signal from a temperature sensor in thermal communication with the cooking cavity and selectively subjected to airflow from a fan, said method comprising the steps of:

obtaining a sample output signal from the temperature sensor;

determining whether the fan is energized when the sample is obtained,

and

if the fan is not energized when the sample is obtained, determining an unadjusted temperature based on the sample output signal, and

if the fan is energized when the sample is obtained, determining an adjusted temperature based on the sample output signal.

30. A method in accordance with Claim 29 wherein the unadjusted temperature is generated using a first lookup table corresponding cavity temperatures to temperature sensor output signals when the fan is not energized.

31. A method in accordance with Claim 29 wherein the adjusted temperature is determined using a second lookup table corresponding cavity temperatures to temperature sensor output signals when the fan is energized.

5 32. A method for adjusting cooking parameters if an oven cavity temperature is above a selected temperature upon initiation of a speedcooking cycle, the oven including an RF generation module, an upper heater module, and a lower heater module, said method comprising the steps of:

10 determining a time period during which thermal compensation is to be performed; and

15 determining energization of selected module elements during the determined thermal compensation time period.

33. A method in accordance with Claim 32 wherein the thermal compensation time period is determined in accordance with $(TM - 31.25) / 56.25$, where TM is equal to the cooking cavity temperature upon initiation of speedcooking.

15 34. A method in accordance with Claim 32 wherein the determined energization is based on a pre-set percentage.